

NATIONAL CENTRE FOR EPIDEMIOLOGY & POPULATION HEALTH

ANNUAL REPORT 2005

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Australian Government

Department of Health and Ageing



THE AUSTRALIAN NATIONAL UNIVERSITY

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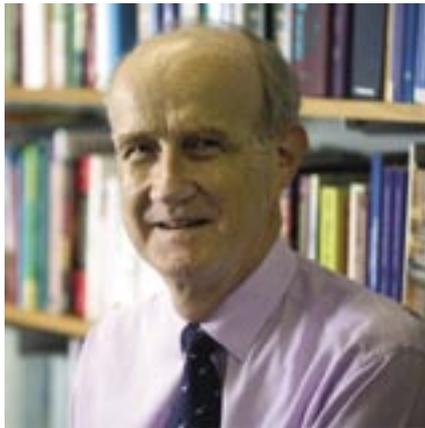
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DIRECTOR'S FOREWORD



Calendar year 2005 was a bit unsettled.

We awaited the outcome of the Commonwealth Government's review of the Public Health Education and Research Program (PHERP); hived off the newly-funded Australian Centre for Economic Research in Health (ACERH); prepared to join the University's new ANU College of Medicine and Health Sciences; and began anticipating the new national research quality framework.

For the past 15 years NCEPH has received substantial PHERP funding from the Commonwealth Department of Health and Ageing. For this (and the University's matching contribution) we are very grateful. The formal PHERP review, carried out in 2004-05, had a very welcome outcome. The Department has decided to continue funding the program for another five years – the fourth such cycle.

The pleasing message is that government continues to value the professional training and the research capacity-building in population health that is being achieved by the program.

Appreciation of the fundamental role of population health research and strategies cannot be taken for granted. Much of our success is invisible to the conventional gaze – the premature deaths that don't occur. Perusing the daily newspapers reminds one that clinical breakthroughs in disease treatment, heroic surgery, and intricate molecular biological research dominate the community's view of 'real health science'. A picture of a seriously overweight diabetic person who has just had a successful stomach-stapling operation excites much more public fascination than would a picture of 100 persons who, because of public health strategies at family, neighbourhood and city-wide levels, did not ever incur the (food-in-and-activity-out) energy imbalance that causes obesity. Yet we know which of the two types of intervention is of greater value to society, in wellbeing, health and economic terms.

Governments, meanwhile, are distracted by the pressures of ageing populations with rising disease burdens, hospital waiting lists, doctor shortages, increasing consumer (web) literacy in matters medical, and, therefore, rising costs. So, regrettably, the fundamentals of population health easily get forgotten. We forget that most departures from good health (which, after all, we should expect to be the usual default state) reflect something amiss in the way that we live, work and behave. It is the continuing, ever-important, task of population health research to identify those 'somethings' and to propose and evaluate ways of reducing their adverse health consequences.

More cheerfully, we were delighted that the Commonwealth Department of Health and Ageing has agreed to fund our highly-regarded Master of Applied Epidemiology (MAE) program for the next five years. At year's end, we welcomed the appointment of two new MAE academic staff – Paul Kelly, MAE Director, and Hassan Vally, senior lecturer.

Year's end also saw several greatly valued colleagues depart. Richard Eckersley and Colin Butler – both of whom have substantially extended NCEPH's horizons of population health thinking – have left in search of other pastures. Their leaving reflects, in part, the budgetary stringency that now pervades Australia's universities. Further, we must now all face daily life without Blanka Baric, our irreplaceable tea-lady of 14 years standing.

Meanwhile, busy collegial life at NCEPH goes on – lots of interesting research; interactions with the policy arena; a kaleidoscope of fascinating doctoral research; busy engaged MAE students; increased teaching involvement with the new Medical School, successful short courses and workshops, and, most importantly, a high quality of in-house administrative support for research and teaching.

Tony McMichael
Director, NCEPH

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Tamara Blakemore, Australian Government
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9 June 2005 – 16 June 2006

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21 February 2005 – 31 December 2005

Nicholas George Car, Charles Sturt University
1 January 2005 – 30 June 2005

Pui-hong Chung
3 March 2005 – 18 March 2005

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Centre Visitors

Colin Butler

22 November 2005 – 2 December 2005

Tony Capon, Western Sydney Area Health Service

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Charlotte Clark, University of London, UK

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Trong Lan Phan, Ministry of Health, Vietnam

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7 June 2005

Alexander Strachan

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July 2004 – July 2007

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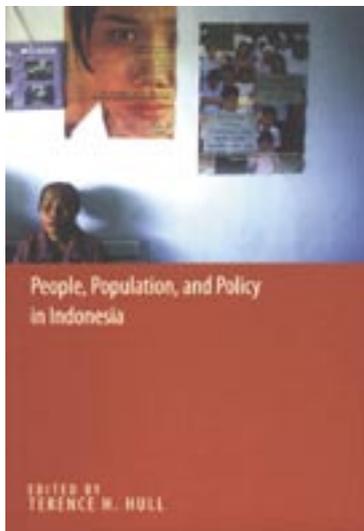
Hassan Vally*

Lara Williamson*

* For part of the year only

BOOKS

People, Population, and Policy in Indonesia



Edited by Terence H Hull

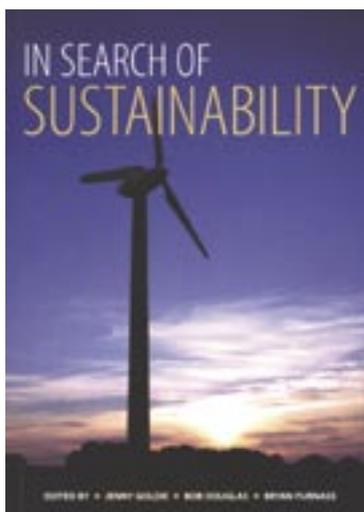
First published in Jakarta by Equinox Publishing (Asia), and Singapore by the Institute of Southeast Asian Studies, 2005.

Since its inception in 1945, the Republic of Indonesia has experienced a series of profound social changes. The spread of schooling, the transformation of the economy, and the consolidation of a unified state have transformed the lives of Indonesian citizens. It is seldom recognised, however, that the most fundamental changes have occurred in the family sphere. Marriages that used to be arranged by parents are now more likely to be determined by couples. Unions occur when the couples are much older. The adoption of birth control practices has reduced fertility from large families to a two-child norm in just over 30 years. These changes have moulded the lives of individual women, described here through a series of personal case studies, and shaped the size and structure of the national population, as seen in the statistics produced by the government on a regular basis.

The story that emerges gives strong hints about where the Indonesian population will be heading in the next 50 years with a growing proportion of aged citizens. Most importantly *People, Population, and Policy in Indonesia* shows the importance of collaborations between Indonesian leaders and their foreign colleagues in their efforts to reshape the Indonesian population and improve its social and economic welfare.

People, Population, and Policy in Indonesia has been published in both English and Indonesian.

In Search of Sustainability



Edited by Jenny Goldie, Bob Douglas and Bryan Furnass
CSIRO Publishing 2005

What must we do to achieve a sustainable society? There is no single answer. The first steps towards sustainability cover a whole spectrum of economic, social and environmental issues.

In this volume Australian leaders from a wide range of fields discuss the key issues we must address if we are to move towards a more just and sustainable future. They identify the major concerns and challenges for achieving sustainability in the areas of human health, water resources, land use and natural ecosystems, energy, equity and peace, economic systems, climate change, labour forces and work, urban design and transport, and population. The thought-provoking chapters in this book provide a solid introduction to the issues in the search for a genuine path to sustainability.

Bob Douglas is a Visiting Fellow at NCEPH.

RESEARCH & GRANTS

NCEPH research activity continues to be concentrated mainly in the areas of communicable diseases, environmental health, population, health and development and social determinants of health. Much of the research activity in health systems has now been transferred to the new Australian Centre for Economic Research on Health. Meanwhile, as ever, there is a good deal of collaborative research between the groups, as well as projects that fall outside the main research groups. Gabriele Bammer's work on Integrative Research and Emily Bank's involvement in the '45 and Up Study' on healthy ageing are two important areas of research at the Centre - see the following pages for highlights.

The Centre maintained its academic staffing levels in 2005 of 33 full-time equivalent staff, 16 of whom were junior staff at academic levels A or B. Staff published 107 papers in peer-reviewed journals, two books and over 40 book chapters. Staff were also invited to give over 60 keynote conference addresses during the year. Six conference papers were published, as well as over 70 reports and other journal articles.

Research commenced on a number of competitive grants at the Centre in 2005, which brought the total for the year to seven ARC grants and fellowships and 14 NHMRC grants and fellowships. External income from competitive grants of \$6,846,848 increased by over 60 per cent from 2004. In addition NCEPH staff undertook a number of consultancies for government and other organisations. Some of the funded research undertaken in 2005 includes:

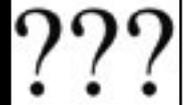
Grants

- NHMRC Project Grant – The role of EBV and HHV-6 infection in demyelinating disease with a consideration of past UVR exposure
- NHMRC Training Award (Sidney Sax Postdoctoral Fellowship) – Epidemiological studies of the association between immune deficiency and cancer and sunlight and immune-related disorders
- NHMRC Project Grant in collaboration with Curtin University of Technology and the ANU Research School of Pacific and Asian Studies – Improving the understanding of psychostimulant-related harms amongst young people: an integrated ethno-epidemiology
- NHMRC Capacity Building Grant in Population Health in collaboration with University of Sydney and University of Melbourne – Mathematical modelling for improved planning of infectious diseases control policy
- ARC Discovery Project Grant – The weight of modernity: mitigating obesity
- ARC Discovery Project Grant – New mathematical and statistical methods that inform the control of infectious disease outbreaks
- ARC Discovery Project Grant – Using national surveys to uncover and assess potentially harmful sexual practices in Southeast Asia
- ARC Linkage Grant in collaboration with University of New England and University of Queensland – Impact of parents' employment on children's wellbeing: The influence of employment quality, time and activities with children, and parenting practices
- Department of Families, Community Services and Indigenous Affairs – jointly to NCEPH and the Centre for Mental Health Research, to facilitate the provisions of social policy research
- Australian Rotary Health Research Fund (ARHRF) Research Grant – Job quality and the mental health of working parents and their children

Consultancies

- Australian Conservation Foundation and the Australian Medical Association – Climate Change Health Impact in Australia: the Effects of Dramatic CO₂ Emission Reductions
- Asian Development Bank – Greater Mekong Subregional Communicable Diseases Control
- Commonwealth Department of Health and Ageing – Costing the impact of foodborne disease on industry in Australia
- Commonwealth Department of Agriculture, Fisheries and Forestry – Analysis of human health and food product surveillance relevant to diseases of animal origin for integration with animal health surveillance of these diseases in Australia
- Commonwealth Department of Health and Ageing in collaboration with University of Sydney – An independent review of the methodology of the draft guidelines for the management of asymptomatic women with screen detected (cervical) abnormalities

Uncertainty



Dr Gabriele Bammer

Uncertainty is a fact of personal and professional life. Despite this, relatively little effort has gone into understanding uncertainty, so that, in an age when humans can travel into space and map the human genome, our tools for understanding and managing uncertainty are comparatively unsophisticated. There has been an attempt to rectify this centuries-old neglect in the last 60 years, with a flurry of activity in numerous disciplines and practice-based areas. But surprisingly, relatively little effort has gone into exchanging ideas between different approaches in order to generate new knowledge and improve existing methods.

Trading information and building on resultant new insights were the objectives of a symposium held in April. We brought together 21 perspectives drawn from academic disciplines, professional groups and practitioners focusing on specific problems. Among other areas, we covered physics, the only discipline to have an uncertainty principle; jazz, where improvisation requires dealing with uncertainty in the moment; history, where certainty equates with patriotism; law, where reliance on precedent means that consideration of uncertainty is taboo; and politics, which requires skill in the art of turning uncertainty to advantage.

The symposium built on my long-standing interest in research that brings together many disciplines and practice sectors, specifically in integrating those different areas of knowledge to address complex problems. This has led to the development of the new specialisation of Integration and Implementation Sciences. The new specialisation specifically recognises the importance of being able to better deal with uncertainty as a cornerstone for making more effective decisions about difficult complex issues.

Further, collaboration with the ANU School of Psychology's Michael Smithson allowed his long-standing interest in the related areas of ignorance and uncertainty to provide a solid foundation for the symposium.

The 'price of admission' for each participant was to produce an essay on the approach to uncertainty in their area of expertise. These lucid essays and integrative papers based on them are being published as a book, which, as far as we are aware, is the first to explore such a multi-perspective approach to uncertainty.

The symposium was supported by Colonial Foundation Trust and The Australian National University's National Institute of Social Sciences and Law.



Front row L-R: Aileen Plant (disease outbreaks), Peter Deane (assistant), Liz Furler (policy), Judith Jones (law), Pascal Perez (complexity), Steve Longford (intelligence), Sasha Grishin (art history), Alison Ritter (illicit drugs), Alan Hájek (philosophy), Gabriele Bammer (Integration and Implementation Sciences)

Back row L-R: Robyn Attewell (statistics), Michael Moore (politics), Stephen Pickard (religion), Stephen Buckman (physics), Ann Curthoys (history), Ian White (environment), Michael Smithson (psychology), John Mackey (jazz), John Handmer (hazards), Michael McFadden (law enforcement), Paul Perkins (environment)

Missing: Kate Delaney (futures), Steve Dovers (environment), John Quiggin (economics), Olivia Harkin (assistant)

The 45 and Up Study



Emily Banks

The '45 and Up Study' is a large-scale cohort study in Australia of men and women aged 45 and over, designed to investigate healthy ageing. The study aims to involve 250,000 men and women aged 45 and over from NSW, amounting to over 10 per cent of the NSW population in this age group. Participants will provide information about their health and lifestyles and have their health followed over time, through repeat questionnaires and through linkage to routine health care databases, including Medicare, hospital admissions (through NSW Health), the NSW Central Cancer Registry and the National Death Index. The unique diversity of the NSW population, combined with the rich sources of health information available through the Australian health system, means that the study will be able to address a very wide range of research questions on ageing and provide information of national and international significance.

The '45 and Up Study' is a collaborative project, with over 120 participating researchers to date. It is auspiced by the Sax Institute and funded by The Cancer Council NSW, the NSW division of the National Heart Foundation, NSW Health and beyondblue. It has the following priority areas that will be the focus of research attention over the coming years:

- investigation of the burden of disease in New South Wales
- examination of the socio-economic determinants of healthy ageing
- investigation of the health effects of obesity, overweight and physical activity
- investigation of risk factors for and the detection and management of cancer
- investigation of risk factors for and the management of cardiovascular disease
- investigation of impact of environmental factors on healthy ageing
- examination of risk factors for mental health problems in later life
- investigation of use of health services in relation to ageing
- investigation of health in people 80 and over (the 'old old').

NCEPH plays a key role in the '45 and Up Study'. I am the study Director and NCEPH researchers Hilary Bambrick, Bryan Rodgers, Dorothy Broom, Mark Clements, Rosalie Woodruff, Rosemary Korda and Tony McMichael are collaborating in the study, particularly in areas relating to environment, physical activity and overweight, cancer, health inequalities, mental health and retirement. At the time of writing, over 30,000 participants had joined the '45 and Up' study and recruitment is expected to continue over the next five years.

More information can be found at the study's website: www.45andUp.org.au.

COMMUNICABLE DISEASES



With the recent outbreak of SARS, and the concerns surrounding the risk of an influenza pandemic, much of our work has been involved with the threat posed by newly emerged and emerging infectious diseases. Our activities include projects to strengthen capacity for controlling communicable diseases in the ASEAN region, as well as mathematical modelling to assist policy makers in preparing pandemic influenza strategies.

We also continue to work on studies of foodborne disease. This work greatly benefits from international collaboration, as it allows us to make comparisons across different countries.

The mathematical modelling group has been greatly strengthened by the arrival of three new researchers to the team. David Philp has joined us as part of an ARC grant that will develop techniques for evaluating and monitoring infection control measures during an outbreak of a newly emerged infectious disease. Belinda Barnes and Peter Caley have joined NCEPH as part of a Capacity Building Grant that brings together researchers from the University of Sydney, University of New South Wales, University of Melbourne, Royal Melbourne Hospital and Curtin University of Technology. The major aim of this grant is to establish a comprehensive program of research, based on mathematical modelling, to aid the understanding of and provide policy support for the control of infectious diseases, now and well into the future. This capacity building grant will involve the integration of mathematical modelling with policy and public health service delivery under three major infectious disease control themes of national importance: bioterrorism and emerging infectious diseases (preparedness and control), nosocomial infections and control of drug resistance, and new methods to use data to improve transmission models.

One of the challenges during an infectious disease outbreak is to assess the level of under-reporting. If there are many mild or asymptomatic cases, it can be difficult to know whether our control measures are having an effect, and even more difficult to tell when the outbreak is over. Researchers in the communicable diseases groups have begun to develop statistical methods for these circumstances. The methods allow us to calculate the likely number of hidden cases using only the data on reported cases. Importantly, we can also use these methods to predict future cases, and so can provide guidance on whether an outbreak is over.

Some examples of staff research projects in 2005 follow. For a complete list of research projects in this area, see the Centre's website: http://nceph.anu.edu/Research/Comm_Dis/projects.php

International collaborations



Mahomed Patel

Three major activities highlight our engagement in the control of communicable diseases in the Asia Pacific Region.

In the first half of 2005 we collaborated with the Asian Development Bank and Cambodia, Laos and Vietnam, to develop 'The Greater Mekong Subregional Communicable Diseases Control Project' funded by the Bank (budget of USD33 million over five years). Our key role was to design the three-year plan to strengthen national and regional capacity in countries to control communicable diseases and prepare for pandemic influenza. In this initiative, we focussed on strengthening four key components:

- legislation and institutional structures
- systems for surveillance, response and preparedness
- workforce development starting from the level of basic and undergraduate training to senior decision making levels
- expanding national, regional and international partnerships and networking.

In June, in collaboration with the Secretariat and members of the Association of South East Asian Nations (ASEAN), we completed the nine-month AusAID funded project on Phase 1 of the 'ASEAN plus 3 Emerging Infectious Diseases Program'. The key achievement of the project was the establishment of a sound foundation for integrated regional policy development on emerging infectious diseases. This included mobilising regional multinational outbreak response teams, sharing data on individual and institutional expertise and on the results of surveillance and outbreak investigations; sharing experiences and expertise on the responses to avian influenza; nurturing a regional laboratory network for establishing uniform systems of quality assurance, biosafety and laboratory-based surveillance for selected diseases. These activities have been enshrined into the Vientiane Action Program that outlines ASEAN's strategic goals for the next five years.



WHO – Ministry of Health team at statue of Mao
L-R: Dr Chin-Kei Lee, Epidemiologist (WHO China), Professor Angus Nicoll, Influenza Specialist, (European CDC, European Union), Ms Grace Qi, Translator (Hunan), Dr Mahomed Patel (NCEPH, ANU), Dr Julie Hall, Epidemiologist (WHO China), Dr Tawee Chotpitayasunondh, Infectious Disease Physician (Thailand)

Finally, Master of Applied Epidemiology students joined WHO teams through the Global Outbreak Alert and Response Network, to respond to human infections with avian influenza (H5N1) in Cambodia (Ben Coghlan and Bridget O'Connor) and Indonesia (Chris Oxenford). In addition, in November Mahomed Patel participated in the combined WHO-Ministry of Health team that evaluated China's response to the first human cases with the H5N1 infections in Hunan Province, China.



Mahomed Patel and MAE alumnus, C-K Lee, with family of young boy survivor of avian influenza, Hunan Province, China.

Crystal-balling the next influenza pandemic



Niels Becker, Belinda Barnes, Peter Caley, Katie Glass, David Philp

Pandemics of influenza have occurred intermittently throughout recent human history, with the most notable being the misnamed 'Spanish Flu' pandemic of 1918–19, and subsequent pandemics in 1957–58 and 1968–69. The current panzootic of highly pathogenic avian influenza (H5N1 strain), is seen as a possible precursor to the next influenza pandemic. With this in mind, Professor Niels Becker and his modeling group, in collaboration with other members of the Capacity Building Grant for the Mathematical Modelling of Infectious Diseases at Melbourne University (James McCaw and Jodie McVernon) and Sydney University (James Wood), have been modelling the likely dynamics of a future pandemic. The aim of this work is to assess how effective various interventions are at controlling disease transmission. Of course, the epidemiological characteristics of the next pandemic strain of influenza are unknown, so Niels and his group have been guided by previous pandemics and currently circulating influenza strains in the range of parameter values explored.

One question of interest is to see how the introduction to Australia may be delayed by border controls, such as passenger screening, home-quarantine of arriving passengers and restricting incoming traveler numbers. When the infection does arrive in Australia interest turns to altering the course of the epidemic, and hopefully containing it by a wide range of interventions. These interventions include nonpharmaceutical measures, such as closing schools, isolating cases, quarantining households, avoiding mass public gatherings, wearing masks and adopting hygiene measures that reduce transmission. Pharmaceutical measures, such as the use of anti-viral drugs, are also available.

The modelling results have the ability to inform Australia's pandemic influenza preparedness planning and policy in many ways. For example, an analysis using models reveals that international travel must be restricted dramatically if the importation of pandemic influenza is going to be delayed by more than a few days. If there is typical epidemic growth of pandemic influenza in the source region, then screening arriving passengers for flu like symptoms will delay the importation of the pandemic by a matter of days only – hardly worth the disruption it would cause. Likewise, closing schools and non-essential workplaces appears to have much less benefit in terms of reducing transmission than many people believe. On the other hand, simple measures such as increasing hygiene and avoiding non-essential contacts (social distancing) can reduce influenza transmission more effectively. Modelling the possible ways of distributing Australia's antiviral stockpile has been particularly interesting. Indiscriminate use of antivirals for prophylaxis limits transmission minimally in comparison with targeted distribution to those people who are likely to become exposed (eg influenza-dedicated health care workers, family members of cases), or who have recently been exposed (eg doctors diagnosing cases). Targetted distribution of antiviral drugs appears capable of flattening the epidemic curve of a pandemic considerably, if these drugs are as effective for the pandemic influenza virus as they are for currently circulating strains of the virus and about one half of the contacts of cases can be prophylaxed in a timely manner.

It appears possible that using many interventions in combination and with good compliance, a highly transmissible strain of pandemic influenza could be contained – whether the disruption involved is justified depends on the disease severity.

Burden of foodborne disease



Gillian Hall , Hassan Vally

NCEPH is a founding member of the International Collaboration on Enteric Disease: 'Burden of Illness Studies'. The second annual meeting was held in Madrid in 2005, and the third meeting will be in Atlanta in 2006. The purpose of this collaboration is to facilitate communication between groups who have conducted or are interested in conducting studies to determine the burden of enteric or foodborne disease. The meetings are extremely stimulating, with approximately 40 attendees presenting updates on collaborative projects from 13 countries as well as representation by the World Health Organization.

Australia is a key partner through OzFoodNet and NCEPH. Projects include assessment of the global burden of *Salmonella*, examination of the relationship between climate and enteric disease and a project looking at the impact of various case definitions on the observed epidemiology of gastroenteritis. NCEPH is also playing a leading role in a project looking at the role of healthcare system differences in explaining the considerable disparity in *Campylobacter* notification rates between Australia and the United States. An examination of the role of access to healthcare and the rate of stool culturing in explaining these differences has been completed and a survey of laboratory practices is soon to be commenced.

Key outcomes from the meeting included the formation of working groups to review international case-control studies into foodborne illness and to explore possible areas of research for increasing our understanding of the epidemiology of *Campylobacter*. A working group looking at ways of estimating the burden of illness of Norovirus was also formed. This pathogen is increasingly recognised as a major cause of gastroenteritis around the world.



Delegates at the International Collaboration on Enteric Disease meeting.

ENVIRONMENTAL HEALTH

Environmental health research at NCEPH engages with the traditional range of local concerns about environmental pollutants and infectious agents in water, air and food. In addition to this, we recognise that the dramatic changes that are occurring at the global level – such as climate change, environmental degradation, changing trade regimes and travel – have profound implications for environmental health research.

NCEPH's environmental health research program has three main research pillars: (i) the aetiology of immune disorders, (ii) air pollution effects, and (iii) climate variability and climate change. This research encompasses household-level exposures (such as indoor air quality and temperature contributions to respiratory diseases), through community exposures (such as air pollution, heat waves, mosquito-borne diseases and food safety) to large-scale environmental changes (such as climate change, stratospheric ozone depletion and ecosystem sustainability). Increasingly, our understanding of the broadscale and indirect pathways whereby landscape use, extreme climate, and global trade interact with built environments (transport systems, infrastructure, city planning and building design) is influencing research into the profound changes occurring in modern human societies and health outcomes. These include the rising prevalence of obesity and changing patterns of infectious disease transmission in Australia.

Over the past year, the following major research questions has been studied:

- The relationship between ultraviolet radiation exposure, immune system activity and the occurrence of autoimmune disorders (multiple sclerosis, asthma and diabetes)
- Analyses of the relationship between urban air pollution levels, climate factors and death rates, including new approaches to time-series modelling, spatial analyses, and 'harvesting'
- Research into the effect of seasonal variations in temperature on respiratory infections in children and cardiovascular disease in older people
- Studies of how climatic variations influence the distribution and occurrence of infectious diseases (Ross River virus disease, food and water borne pathogens)
- The relationship between adverse ecosystem change and extreme climate, the modifying influences of social and political factors, and poor mental health (manifesting as deliberate self harm and suicide)
- The future impact of climate change on health (including estimation of heatwave mortality and mosquito-borne disease distribution), the identification of vulnerable groups, and opportunities for adaptation. The group prepared a report which compared the climate change-related health impacts for Australia of early versus late mitigation of greenhouse gas emission, and contributed to an assessment for the Australian Greenhouse Office on future issues for the Australian built environment.

Our research into environmental health issues is greatly enhanced by our collaboration with partners at ANU (particularly the Centre for Resources and Environmental Studies, and the ANU Institute for Environment), other universities, government and industry. Three major related programs are the NHMRC capacity-building program in environmental health, the Australian Government Department of Health and Ageing's 'Innovations' program: 'Atmospheric Environment and Health' (with CSIRO, Bureau of Meteorology, University of Sydney and NSW Health), and the NCEPH participation in the Asian MetaCentre for Population and Sustainable Development Analysis (with the National University of Singapore and others).

Some examples of staff research projects in 2005 follow. For a complete list of research projects in this area, see the Centre's website: http://nceph.anu.edu.au/Research/Env_Health/index.php

The Ausimmune Study



Robyn Lucas

Over the last 30 years, the incidence of Multiple Sclerosis (MS) and other immune disorders has been rising in Australia and around the globe.

The Ausimmune Study seeks to examine environmental influences on the incidence of first demyelinating events, a frequent precursor to MS. The study is funded by the National Multiple Sclerosis Society of the United States and the NHMRC. A primary focus is the effect of ultraviolet radiation exposure or vitamin D levels, on immune function, with variation in UVR exposure as a possible explanation of the seven-fold increase in MS prevalence observed from North Queensland to Tasmania. The Ausimmune Study is a large, multicentre collaboration across 10 research institutes and three hospitals, harnessing a unique combination of clinical, epidemiological and environmental research skills.

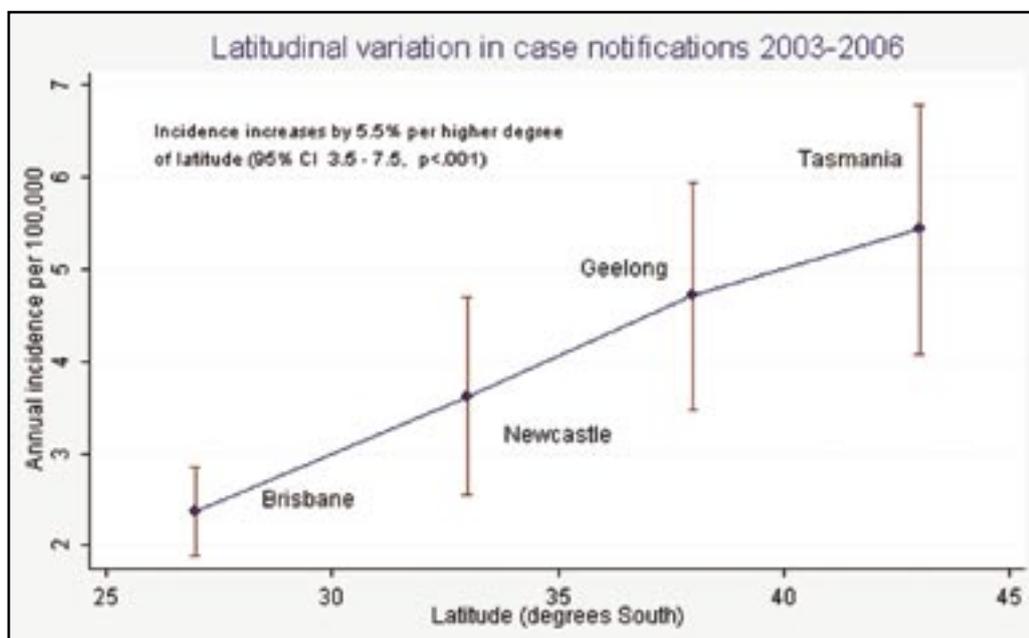


Figure. Latitudinal variation in cases notified to The Ausimmune Study, 1 Nov 2003 to 28 Feb 2006.

We are examining a number of environmental exposures, including subjective and objective measures of UVR exposure, history of infections and childhood contact with other children, organic solvents, diet and stress.

Since 2003 we have been recruiting adults aged 18-59 years with a first clinical diagnosis of demyelination who are resident in one of four study regions, (Brisbane, Newcastle, Geelong and the Western Districts of Victoria, and Tasmania).

Preliminary analysis shows a marked latitudinal gradient of first demyelinating events.

There is also evidence that other autoimmune disorders show increasing incidence and a similar geographic gradient. Researchers at NCEPH, in collaboration with others, are building on the success, expertise and infrastructure of The Ausimmune Study to initiate a similar study of type 1 diabetes in children. Recruiting for Ausimmune 2: Diabetes is expected to be underway in early 2007.

The new study proposed here will build on the infrastructure already in place for the Ausimmune Study, but extend the latitudinal range of the study with the addition of a new centre in Cairns. This will increase the range of UVR exposure, ambient and individual, and provide additional data with which to test the hypothesis of the protective effects of UVR exposure. Australia was recognised as an excellent site to undertake the Ausimmune Study, as a study examining environmental influences on immune function, in view of the large latitudinal span available in Australia, the uniform health care system and the demonstrated relative genetic homogeneity down the eastern seaboard. The proposed study will utilise these same attributes of Australia.

International Environmental Activities



Tony McMichael

Intergovernmental Panel on Climate Change (IPCC)

Work on the fourth of the ongoing sequence of five-yearly assessments of climate change by the United Nation's Intergovernmental Panel on Climate Change (IPCC) began in 2004. I am the official Review Editor for the draft chapter on health impacts of climate change. Rosalie Woodruff and Tord Kjellstrom are contributing authors to that chapter, and Rosalie is also a contributing author to the Australia and New Zealand chapter. Work on the first-order draft began in 2005, leading to a working group meeting in Mexico in January 2006. During 2006 the revised drafts of the Fourth Assessment Report will be subjected to a further round of external review. The report is due to be published in 2007.

Millennium Ecosystem Assessment

NCEPH made a substantial contribution to the ground-breaking work of the international Millennium Ecosystem Assessment project, which concluded in 2005. This huge five-year scientific assessment of the nature and extent of human impacts on Earth's ecosystems, resultant impacts on human communities (including health impacts), and plausible future trends and impacts involved 1500 scientists from diverse disciplines and from all continents. The project was jointly funded by a range of high-level UN and other international agencies and networks and by a number of national governments. Colin Butler and I were actively engaged in the assessment and in writing parts of the final report. With Simon Hales (who took the lead), we subsequently drafted the overall synthesis report of the scientific evidence pertaining to how ecosystem changes affect human wellbeing and health. This Synthesis Report was published by the World Health Organization in December 2005, and launched at a conference in Bangkok.

Earth System Science Partnership

This ESSP partnership was established in the 1990s by the International Council of Science to foster coordinated international research to better understand the workings of the planet at large, and how human activities affect those workings. Three projects formally exist – on the world's freshwater (hydrological cycles); on the global carbon cycle (including greenhouse gases); and on the impacts of global environmental changes (human-induced) on food production systems. A fourth project, Global Environmental Change and Health (GECAH), was initiated in 2003, and I am co-chairing its development. The secretariat for developing this GECAH project is in Paris, at the office of Diversitas (linked with the world's Biodiversity Convention). Following two planning meetings in Paris, the work in 2005 involved development of the project's Science Plan and Implementation Strategy. The project will be launched in Beijing in November 2006, at the ESSP Open Science Conference. Coordinated research activities will then begin in 2007.

Assessment of global burden of disease attributable to solar ultraviolet exposure

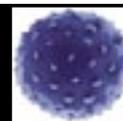
As an extension of WHO's Global Burden of Disease work, a specific project was commissioned to assess the disease burden due to solar UVR. Robyn Lucas (the principal researcher) and I submitted a report to WHO, presenting calculations of the burden of disease from solar UVR-induced adverse as well as beneficial effects on human health.

Teaching in the Asian region

As part of NCEPH's contribution to the Wellcome Trust-funded Asian Metacentre, Tord Kjellstrom, Adrian Sleigh and Rosalie Woodruff facilitated a one week workshop in Bangkok, Thailand. The workshop provided intensive research skills development for teams from five Asian countries who submitted applications to the Wellcome Trust on questions related to the health consequences of environmental and population change. Rosalie Woodruff later helped facilitate a workshop in northern India funded by the World Health Organization, the World Meteorological Organization, the United Nations Environment Program and the United Nations Development Program. Participants were from the health sectors of countries in the Hindu-Kush Himalayan region, and the focus was on adaptation planning for climate change health impacts.

Chapters in major international text-books

During 2005, Tord Kjellstrom and Tony McMichael completed work, jointly and with inputs from other colleagues, on two major chapters for the reference texts: *Disease Prevention Priorities in Developing Countries* and the second edition of *International Public Health*.



Keith Dear

A team of epidemiologists and statisticians at NCEPH are working with CSIRO Marine and Atmospheric Research (CMAR) to set up the first Australia-wide forecasting system for human health. In collaboration with CMAR's mathematicians and meteorologists, and with data from the Queensland and Victoria State Health Authorities, we are building models to anticipate peaks in health service usage associated with adverse atmospheric conditions (air quality and temperature). This type of research has not previously been attempted in Australia. The project's principal output will be a service of value to health authorities for identifying local areas with particular health risks, and for hospital resource allocation: health authorities will have access to daily risk forecasts for diseases affected by environmental conditions, such as respiratory and cardiovascular ailments, which will permit them to respond to variations in demand due to atmospheric environmental conditions. The health forecasting system will also provide detailed advice to specific clients in the health sector, such as hospitals and general practitioners for resource scheduling, and to non-health organisations whose business involves health risks from extreme air quality conditions, eg sporting organisations.

In 2005 we have built predictive models for Brisbane and Melbourne.



Air pollution: NCEPH and CSIRO are building models to anticipate peaks in hospital admissions due to changes in atmospheric conditions.

These statistical models show skill in predicting city-wide total hospital admissions up to seven days ahead. The next step is to use our models to find what particular combinations of weather, air pollution, locality and time cause abnormal health risks. How various factors such as heatwaves, atmospheric ozone and other air pollutants interact in causing asthma attacks, for example, is unknown. We are focusing on the role of atmospheric conditions in causing peaks of hospital admissions for respiratory and cardiovascular disease, and by developing methods to forecast high-risk conditions a few days ahead we aim to enable people to minimise their individual risk.

This work was supported in 2005 by CSIRO's Preventative Health Flagship. With further funding from the same source in 2006, we will develop novel statistical and computational methods for evaluating forecasting algorithms using historical data, and for identifying 'hotspots': city areas of high environmental susceptibility. We also hope, in collaboration with NSW Health, to add Sydney to our analyses.

HEALTH SYSTEMS

In 2005, most of the NCEPH research activities in the area of Health Systems were transferred to the newly established Australian Centre for Economic Research on Health (ACERH) funded by the National Health and Medical Research Council (NHMRC) Health Services Research Program.

ACERH is a multi-university research centre constituted by researchers from The Australian National University (ANU), The University of Queensland (UQ) and the University of Western Australia (UWA). The Centre's focus is on applied health economics research in three main areas: health care financing and insurance; health costs and ageing; and the economic burden of illness and injury. An ethics clearance was received from the ANU Ethics Committee to link data from two private health insurers in Australia with the linked WA/Commonwealth administrative health data. This clearance was necessary for funding from NHMRC to commence, and it led to the establishment of ACERH at ANU in 2005. For details on ACERH research programs and activities see www.acerh.edu.au

Important developments during 2005 included completion of a study on cost-effectiveness of MoodGYM – a web-based intervention for the management of clinical depression developed by the Centre for Mental Health Research; economic analysis of childhood immunisation; a study on epidemiology of genital warts and cervical cancer as part of the development of the new Human Papillomavirus (HPV) prophylactic vaccine, sponsored by Merck Frosst Canada Ltd.; recruitment and data collection for the study on time use of new mothers (ARC grant); continuing analysis of adverse selection in the Australian private health insurance market; modelling the demand for General Practitioners' services in Australia; the World Bank project in Tonga to provide policy advice to the government on user fees for health services, overseas medical treatment schemes, the use of public facilities by private providers, and health care financing reform; the ASEAN-Australia Development Co-operation Program (AADCP) Regional Economic Policy Support Facility (REPSF) study on movement of health care and IT workers in ASEAN; continuing research on liberalisation of health services in ASEAN; and research on modelling the macroeconomic burden of pandemic influenza.

ACERH researchers attended a number of national and international conferences including the 5th World Congress of Health Economists: Investing in Health, 10-13 July, Barcelona, where two papers by NCEPH researchers were presented in the ACERH organised session *Contemporary issues in private health insurance in Australia*.

POPULATION, HEALTH & DEVELOPMENT

The last century has seen a major transition from high to lower rates of morbidity and mortality. Whether in the metropolises of rich nations or remote villages in poor countries, the life expectancy of most people today is far longer than that experienced by their great grandparents, and even their grandparents. This is not to say that people are satisfied with their life chances. Individuals and governments still demand better health care to provide even longer healthy lives. The long-term improvements in survival are partially the product of a variety of innovations in medical treatment but are also the result of social and economic investments. The crucial questions are: which changes have been most important to the improvement of life expectancy and can the most effective interventions be applied to those populations that still suffer relatively high morbidity and mortality? The answers to these questions require an understanding of the social and economic setting of health conditions and the proper management of illness. Only in this way can the innovations that lower morbidity and mortality in one environment be adjusted to ensure the same outcome elsewhere. That is the ultimate aim of the research undertaken by the members of the Population, Health and Development Working Group.

The group is currently investigating the dimensions of health transition in Thailand and exploring the cultural determinants of illness and its management and health-seeking behaviour among poor families in Bangladesh and Indonesia. Members of the PHD working group have looked at environmental determinants of new illnesses. Work being undertaken in Indonesia, and with regard to the analysis of Avian Influenza, and arsenic contamination of ground water also links the PHD group with the environmental and communicable disease researchers at NCEPH.

With funding from the ARC, a survey has been undertaken to assess the changing nature of decision-making relating to family formation in Australia. The group has initiated a series of innovative studies of potentially harmful sexual practices in Asia and Africa with respect to the spread of HIV, and the global recognition of broader aspects of reproductive health and management of associated infections as a priority for health development. In collaboration with the World Health Organization, and partners in Indonesia, Thailand, Mozambique, and South Africa, they are carrying out surveys on the use of vaginal tightening agents and a range of practices related to anxiety over sexual performance. This follows earlier research on genital cutting (both male and female) and men's sub-dermal implant of objects in their penises to cause pleasure or pain for their female sexual partners. In Indonesia it appears that female circumcision is more common than previously recognised, and in many regions it is growing in prevalence and severity.

Demographic changes are central determinants of the structure of health levels and trends in developing countries. Not only are demographic estimates used to define and monitor these problems, but such information is a key guide in monitoring the implementation of health care projects.

There is growing concern among members of the PHD working group that the quality of demographic data in much of the Asia Pacific region is declining due to faltering government budgets and the inability of many statistical offices to adapt to the changing data needs of countries undergoing rapid economic transformation and the decentralisation of government authority.

For this reason the group is increasingly working with donor agencies to improve the quality of social and demographic data quality. One benefit of this activity has been the establishment of a series of data sets from Indonesia, China, Thailand, Cambodia and Timor Leste that is available for ANU staff and students to undertake detailed research on key issues of health and development.

Some examples of staff research projects in 2005 follow. For a complete list of research projects in this area, see the Centre's website: http://nceph.anu.edu.au/Research/Pop_Hlth_Devt/index.php

Thai Health-Risk Transition



Adrian Sleigh, Tanya Mark

The Thai study, funded by The National Health and Medical Research Council and The Wellcome Trust, is now well established in its second year with collaborators and co-investigators from the five main research areas at NCEPH and one from The University of Queensland. By year's end approximately 88,000 cohort participants from Sukhothai Thammathirat Open University (STOU) had returned their 20-page baseline questionnaires that had been mailed out to STOU students throughout Thailand early in 2005. Results will be analysed to document changes in health risk and disease patterns over time to enable feasible interventions and reduction of disease burdens.

Over the last 16 months (since the Thai office opened in mid-2004) there has been rapid progress due to successful staff appointments in both countries and development of Thai-Australian collegial and professional relationships. Appointments of a bilingual research assistant at NCEPH and a data analyst in Thailand have enhanced project capacity and progress.

The main elements of the study are well established: the PhD program; STOU cohort; Look Back Study and collaborative projects – including height of military recruits, self-reported height and weight, SF8 vs SF36, food diversity trends in Khon Kaen markets. More mini-projects and ancillary projects will be initiated from Australia and Thailand.



The second Thai study workshop was held in Canberra in November 2005. The NCEPH choir, *The Confidence Intervals*, showcased their talents and performed renditions of well-known Aussie songs such as *Click Go the Shears* and *Home Among the Gum Trees* for our Thai colleagues on opening night.

Thai study PhD research projects started with pre-field presentations from the five PhD students at the November 2005 workshop. The research students have since commenced their fieldwork in Thailand. Their research areas cover automobility and public health, the burden of coronary heart disease, decomposing health inequalities, maternal and infant health outcomes, and sexual health in transition among adolescents.



Thai and Australian participants at TCS workshop, November 2005.

Researching Female Genital Practices in Indonesia

Iwu Utomo and Terence Hull

Research carried out over the last decade by Terence Hull and me has revealed a wide array of potentially harmful practices related to sexual health. Some of these are relatively rare, such as the use of penis implants, or surgical procedures for hymen restoration and laser vagina surgery. However others are more common, though little acknowledged by health professionals.



Traditional home industry *jamu* sellers selling *jamu* at their stall in the wet market.

In Indonesia women are commonly found to use a variety of substances and behaviours to tighten, dry or cleanse their vaginas. They believe that a vagina that is *peret* (tight), will maximize friction during sexual intercourse and thus maximise the pleasure enjoyed by their sexual partner. The most apparent motive to engage in these practices is to ensure their husbands or lovers will not be tempted to seek out other sexual partners. Women do not always express their motivations in these terms preferring instead to describe subsidiary motives including promotion of vaginal hygiene, reduction of bad odours, or the reduction of white discharge. Nonetheless the sexual basis of the motivations is revealed in the wording of advertisements and the subtext of interviews.

There are various ways to make the vagina tight or dry. Perhaps the most common are washing with betel leaf solution (*air sirih*) or drinking special traditional herbal remedies (*jamu sari rapet*). In both cases the materials can be obtained either from traditional herbalists, or from large displays of commercial preparations available through local shops or supermarkets. More rarely women might insert a rod of calcium carbonate stone – called a *Tongkat Madura* – into the vagina. These are also sold widely through markets across Indonesia, and even exported to Singapore and Malaysia where Indonesian women migrate for employment.

Over the past few years the range of vaginal practices promoted in the marketplace has grown enormously. Today advertisements for traditional and commercial preparations are found in glossy women's magazines, tabloid newspapers, and even tacked on fences and telephone poles. Terms like *gurah vagina* (flushing of the vagina), steaming of the vagina and V-spa have become associated with beauty parlours and spas in both urban and rural areas of Java. The little clinical research done to date indicates that many of the practices can lead to irritation of the vaginal walls and promotion of infections.



Traditional *jamu* from various companies and home industries used for vaginal practices

Despite the growth of the practices, and the suspicion that they may have serious health consequences, the government has neither effective regulations in place nor any intention to regulate the practices. Our study is the first serious attempt to address this sexual health issue from a population and public health perspective. It is part of a multi country study in collaboration with WHO, supported by the ARC, Ford Foundation, Rockefeller Foundation and various national institutions.

The Australian Family Formation Decisions Project

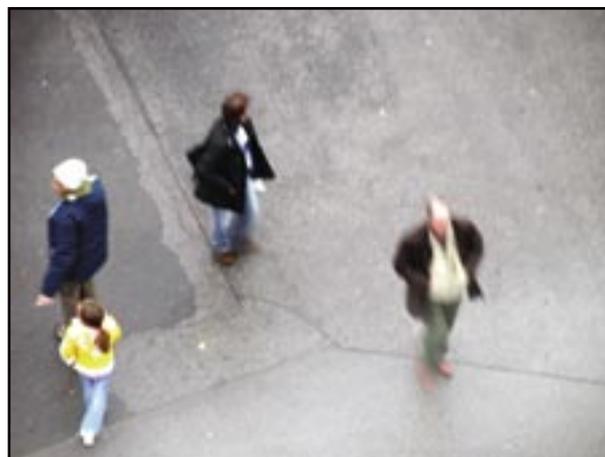


Gordon Carmichael

The Australian Family Formation Decisions Project is based on 115 in-depth interviews with Australian women, men and couples of an age when family formation (forming relationships and deciding whether and when to have children, and how many to have) is a recent past, current, or imminent future issue. Early data analysis has concentrated on childlessness, on relationship formation as a process important to human wellbeing, and on the ways in which living together relationships become established, and the role they play in bringing couples to the point of contemplating parenthood. Work is commencing on 'The Third Child', preliminary analysis suggesting that decisions to have more than two children commonly attract reactions that range from patronising to disapproving. Other themes to be explored include the decision-making process associated with the first child, men's role in delaying family formation, attitudes to marriage and the parenting experience, experiences of and attitudes to childcare, and the work-family balance.

Data on 'chosen' childlessness emphasise the importance of pursuit of lifestyle in accounting for it, and widespread respect for people making their own choices in this matter, despite some accusations and self-assessments that choosing childlessness is 'selfish'. Childlessness 'by circumstance' is commonly brought about by difficulty forming appropriate relationships through one's 30s, as people who openly resisted committing to partners through their 20s to pursue educational, career, travel and lifestyle opportunities discover finding 'the right one' when the urge finally takes them harder than anticipated. Male reluctance to forego lifestyle is a major obstacle to parenthood for some women, but women themselves who lack 'maternal instinct' no longer hesitate to reject motherhood.

Relationship formation in today's Australia is characterised by much ambivalence ('if it happens it happens'), but also some urgency among groups like women conscious of reproductive capacity possibly waning through their 30s. It is a trial and error process in which varied ages at which people are ready to 'settle down' create real difficulty identifying partners whose expectations match one's own. Related to this phenomenon is a 'too soon syndrome', under which relationships recognised as having much to commend them are clinically abandoned as becoming 'too serious too soon'. A range of impediments hinder formation and development of relationships, among them time-honoured male shyness, wariness derived from early negative 'trial and error' experiences, preoccupation with education and career, travel aspirations and the pursuit of personal enjoyment, and having children of a previous relationship.



Picture courtesy of morguefile.com

SOCIAL DETERMINANTS OF HEALTH

Sociologists, psychologists and anthropologists form the core faculty of NCEPH's research program in the Social Determinants of Health (SDH), but many of our projects involve collaboration with colleagues from other disciplines such as epidemiology, biostatistics and immunology. For example, the *Health for Life!* study of working conditions and family health includes chief investigators from each of those disciplines. Additionally, SDH academics are actively involved in contributing social science expertise to research activities based within NCEPH's other research programs such as the Thai Cohort Study.

Much of our SDH work incorporates ongoing interaction with policy makers and other stakeholders to encourage scientifically rigorous research that is informed by practical priorities, and that can lead to policy and practice uptake. For example, we are actively involved with local government and non-government agencies in the discussion of approaches to the prevention and management of obesity.

A particular interest of researchers at NCEPH is the way patterns of inequality in health and wellbeing are transmitted between the generations. Several research projects focus on identifying mechanisms through which the circumstances of parents tend to be reproduced in the lives of their children, as well as the pathways to change. Such understandings are vital information to improving social equity.

NCEPH activity in this area was substantially strengthened during 2005 by the appointment of NCEPH's Dr Sharon Friel to coordinate the World Health Organization's Commission on Social Determinants of Health (www.who.int/social_determinants/en/). The Commission is a three-year initiative by the WHO, and signals international awareness that social, cultural, economic and political elements are recognised as the most powerful influences on health and illness, particularly shaping inequalities in health. These inequalities are evident internationally and between sectors of populations within nations and communities. The Commission draws on the expertise of researchers, policy makers, public health practitioners and advocates to identify best practice and to develop policies and interventions that will diminish health inequalities. Dr Friel's joint appointment to the Commission and NCEPH connects the Centre directly with the leading edge in this significant domain of population health, and creates opportunities for collaboration with the world's best in the field. Further information on the Commission can be found in the Outreach section of this report.

Some examples of staff research projects in 2005 follow. For a complete list of research projects in this area, see the Centre's website: http://nceph.anu.edu.au/Research/Social_Det/index.php

From parent to child: handing down the need for income support



Helen Berry

Children growing up in families that rely on income support live with financial hardship and extreme disadvantage. About half of these children go on to need income support when they grow up. Research in this area has relied on socio-economic factors to account for the pattern, but large differences in individual outcomes remain unexplained. A notable weakness of the research is that it has not made clear why so many disadvantaged children do not grow up to rely on income support. The Research School of Social Sciences at ANU is undertaking a new study intended to address some of these shortcomings. In 2005, we contributed to its design by conducting a review of potentially relevant psycho-social factors that could be included in the study along with a range of socio-economic factors.

In addition to early socio-economic hardship, there are many other factors that shape people's lives, including personality, relationships and connectedness, important life events, stages and transitions, physical and mental health, substance use, and living with violence. Considered together with socio-economic disadvantage, some of these psycho-social factors might shed light on how income support reliance is handed down from parent to child. Some factors might even influence adult reliance on income support directly, with health problems particularly likely candidates. For example, with one in five adults experiencing mental health problems at any time, mental disorders are by far the leading cause of disability in Australia. People's likelihood of needing income support rises dramatically when they have mental health problems, particularly if the problems are severe or enduring. Many childhood factors, including socio-economic disadvantage, can contribute to the onset of mental health problems, and thus to the chances that a person will need income support.

Three of the findings of our review are especially important in framing innovative research in this area. One is that living with extreme disadvantage as a child has enduring effects on many aspects of life, not just on whether children rely on income support when they grow up. A second and related finding is that, to understand how the need for income support develops, many factors have to be taken into account simultaneously. This is best done using 'pathways models' which show how risk factors combine. For example, one reason that childhood disadvantage can affect people throughout life is that it can drive children into adult roles – for example, out of home, into adult relationships, or into parenthood – before they are ready. These premature transitions are themselves upstream risk factors for later mental health problems, and for other adversities (such as divorce), that are related to needing income support. Importantly, pathways models can also show how some children (and adults) manage to be so resilient.

Finally, because many forms of disadvantage go together, they are not evenly shared between everyone, but tend to concentrate in the lives of a few extremely vulnerable people. Each disadvantage is a barrier to success in life. So when children experience many disadvantages, they can face almost insurmountable hurdles in life. It can be all but impossible for them to thrive in adulthood without tailored and sometimes extensive support. Focusing on welfare and economic participation alone is unlikely to inform a sufficient or appropriate response. Our review and expert advice have contributed to a more inclusive consideration of factors that might explain why the need for income support may be handed down from parent to child – and why it may not.

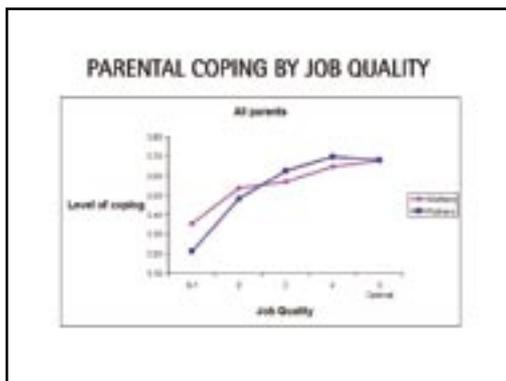
Berry HL, George E, Rodgers B, Butterworth P, Caldwell T. (forthcoming). *Intergenerational Transmission of Reliance on Income Support: Psycho-social Factors and their Measurement*. (FaCS research papers series).

What does 'family friendly' really mean?

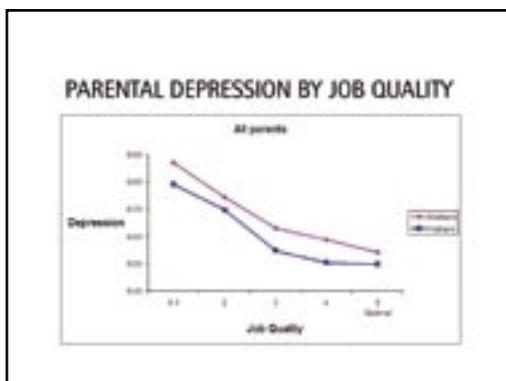


Dorothy Broom

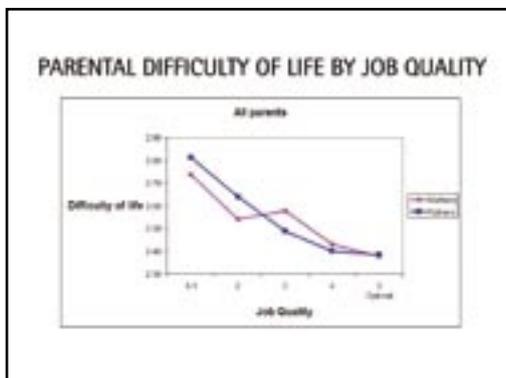
The advice to choose your parents well reflects the common finding that a person's health and wealth are, to a considerable extent, predicted by their childhood circumstances. Children are likely to get a good start in life if they are born to parents who are healthy and enjoy the basics of material comfort. But apart from the advantages of adequate housing and nutrition, it is not obvious how children come to 'inherit' health from their parents. A team at NCEPH is investigating one potentially important mechanism in this process: parental working conditions. The researchers think that because most parents (mothers and fathers) now do paid work while their children are growing up, the conditions in which parents work can affect the time, energy and patience (as well as money) they have available to invest in their children.



To investigate this possibility, we have collected information from employed parents (plus many of their partners) and their children. Parents completed questionnaires asking about their circumstances at work, pressure and workload, opportunities to exercise autonomy on the job, social support at work, and their perceptions of job security. They also answered questions about their own health and that of their children. In addition, we collected saliva samples from both parents and children to investigate two physical measures of health: immune function and a stress hormone called cortisol, as well as measuring height and weight.



The research is unusual in recruiting employed fathers as well as mothers, and in studying details about parents' jobs. It is also ambitious in the range of information it is seeking to relate: several working conditions, self-reported health status, and physical health measures from all family members. The range of information on working conditions was used to develop an index of optimal jobs for parents which enables a much more comprehensive look at what the popular term 'family friendly' really means. Most often, family-friendly work has been considered in terms of family leave provisions, flexibility, and the capacity to work part time. While these are certainly important to employees and their families, there is well-established evidence that insecure jobs, with low control and heavy workloads can be detrimental.



In early analysis, we found that a better job quality was associated with several measures of parental wellbeing (for both part and full time employees) which, in turn, predicts child wellbeing. The graphs show, for example, that effective coping was much more common, and depression and parental difficulties were both much less common among parents with high quality jobs. That is, jobs that combined family friendly benefits with security, control, flexibility and support may benefit whole families, not just the employee. On the other hand, jobs which combine

insecurity, poor control, poor social support and heavy workloads may erode parent wellbeing with potential consequences for children. Policy makers and workplaces could miss a key source of difficulties faced by employed parents if they do not also address the way work is organised and experienced.

Mitigating obesity



Jane Dixon

Apart from avian influenza, the population health problem receiving the most media attention is probably obesity. During 2005, we have begun a major new project investigating the key social trends underlying the rapid increase in obesity in the Australian population, and how people who have lived through the last half century have experienced those trends. The trends include car reliance, busyness, sedentary recreation, and use of convenience foods.

The project adopts a social change orientation to investigate and report on obesity as a 'disease' of modernisation. It involves cultural economy audits of the social trends, plus an extensive interview program enquiring into the practices of people who have lived through the period of change, and with their adult children. Together, these sources of data will be used to illuminate the reasons for the changing social pattern of obesity. We add the historical, structural and experiential dimensions to an issue that is usually studied in terms of individual behavioural risk factors.

The cultural economy audit of car reliance is well advanced, being conducted by PhD student Sarah Hinde. The award of an ARC Discovery Project grant has enabled us to employ Dr Christine Winter as a part-time research assistant collecting data for the audits of the other trends.

Extensive piloting of the protocol for semi-structured life history interviews was undertaken this year, and the interviews (conducted by Dorothy Broom, Jane Dixon and Cathy Banwell) with approximately 80 people born during World War II can now begin. The sample will be drawn from participants in the large longitudinal Melbourne Collaborative Cohort Study, based at the Cancer Council of Victoria, with Graham Giles. Later in the year, new PhD student Anna Davies will undertake similar interviews with a sample of the adult children of the older participants.

To set the stage for our understanding of the social trends, we have begun work on an edited collection (forthcoming with University of NSW) entitled *The Seven Deadly Sins of Obesity: how the modern world is making us fat*. The book is planned to inform policy makers and practitioners as well as fellow academics.

OUTREACH

While scientific research and postgraduate training form the core of NCEPH's activities, staff also make many contributions to professional associations, journals, research funding processes, government decision-making and public education. These activities, which include public lectures and seminars, form an important dimension of the creation and application of scientific knowledge about population health.

A global approach to tackling health inequalities

NCEPH part-time Research Fellow, Dr Sharon Friel is also the Principal Research Fellow for the Commission on Social Determinants of Health, based at University College London with the Chair of the Commission, Professor Sir Michael Marmot.

Throughout the world, vulnerable and socially disadvantaged people have less access to health resources, get sicker and die earlier than people in more privileged social positions. These unfair gaps are growing in spite of an era of unprecedented global wealth, knowledge and health awareness. By far the greatest share of health problems is attributable to broad social conditions. Yet, health policies have been dominated by disease-focused solutions that largely ignore the social environment. As a result, health problems persist, inequalities have widened, and health interventions have obtained less than optimal results. Placing the social determinants firmly on the world health agenda, the WHO Director-General Dr Lee Jong-Wook called for the formation of the Commission on Social Determinants of Health. Operating for three years from March 2005, the Commission is charged with recommending interventions and policies to improve health and narrow health inequalities through action on social determinants.

In order to meet this challenge, the Commission is assembling processes that organise knowledge, strengthen country practice and support leadership. One means of doing this is through Knowledge Networks. These comprise leading scientists and practitioners from around the world, who will compile knowledge on interventions to overcome the social barriers to health, with a focus on low-income countries. The Knowledge Networks are themed, including early child development, health systems, employment conditions, globalisation, priority public health conditions, social exclusion, measurement and evidence, and urban settings. The inaugural meeting of the Knowledge Network on Urban Settings will be held in February 2006 at its coordinating centre, the WHO Centre for Health Development, Kobe, Japan. Dr Friel will attend the meeting as a member of the Commission secretariat and will be joined by her NCEPH colleagues, Dr Jane Dixon and Professor Tord Kjellstrom, who were invited to join the network as international experts in the field.



Knowledge Network on Urban Settings, Commission on Social Determinants of Health members and invited observers (pictured here at WHO Centre for Health Development, Kobe, Japan, February 2006.).

Committee & Board membership

NCEPH researchers served on over 70 committees, boards, councils and other bodies in 2005, including:

National Influenza Pandemic Action Committee
Niels Becker

ACT and South East NSW Breast Screening Advisory Committee
Emily Banks

Association of South East Asian Nations (ASEAN) Emerging and Resurging Infections Surveillance and Response Program
Mahomed Patel - team leader

Australia 21
Jane Dixon, Bob Douglas, Richard Eckersley - directors

Australian Health Economics Society
Jim Butler - president

Collaboration Working Group, Australian Research Alliance for Children and Youth
Gabriele Bammer

Intergovernmental Panel on Climate Change (United Nations)
Tony McMichael

Public Health Association of Australia, ACT Branch
Cathy Banwell - president, Hilary Bambrick - secretary, Rosalie Woodruff

Reproductive Health Services, ACT
Terence Hull - chair

Doctors for the Environment, Australia
Colin Butler

International Scientific Advisory Committee, Cooperative Research Centre on BioSecurity
Tony McMichael

National Health and Medical Research Council (NHMCR) Triennium Council 2003-2005
Tony McMichael

International Centre for Diarrhoeal Disease Research, Bangladesh: Centre for Health and Population Research (ICDDR,B)
Terence Hull - Chair of Board of Trustees.

NCEPH staff have also served on editorial boards for a number of prestigious national and international journals,

Reviewing – manuscripts & grants

including:

- International Journal of Epidemiology
- Social Science and Medicine
- Asian Journal of Population Studies
- Australian Feminist Studies
- Biostatistics
- Cancer Causes and Control
- Australian and New Zealand Journal of Public Health
- Population and Development Review
- Environmental Health

Reviews of manuscripts have been carried out by NCEPH staff for over 70 national and international journals.

They also participated widely in reviewing grant applications for:

- National Health and Medical Research Council
- ACT Health and Medical Research Council
- Australian Research Council
- European Commission
- New Zealand Health Research Council
- Wellcome Trust

Collaborations

Many of NCEPH's research activities involve collaborations with research partners in other universities, CSIRO, government or other professional organisations. A small sample of these are listed below:

- *The Challenges of Uncertainty: Integrating Diverse Disciplinary and Practice Approaches*. Gabriele Bammer and Peter Deane with Liz Furler, La Trobe University; John Handmer, RMIT; Stephen Pickard, St Mark's National Theological Centre; Aileen Plant, Curtin University of Technology; Alison Ritter, Turning point Alcohol and Drug Centre; Professor John Quiggan, University of Queensland.
- *Australian Public Health Nutrition Academic Collaboration*. Sharon Friel and Tony McMichael with John Coveney and Fran Baum, Flinders University; Kerin O'Dea and Dorothy Mackerras, Menzies School of Health Research; Boyd Swinbourne, Tony Worsley and Mark Lawrence, Deakin University; Andrea Begley, University of Western Australia; Malcom Riley, Monash University; Karen Cashel, University of Canberra; Heather Yeatman, University of Wollongong; Karen Webb, University of New South Wales; Michael Dibley and John Germov, University of Newcastle; Roger Hughes, Griffith University; and Terry Coyne, University of Queensland.
- *Biomedical Follow Up of the British 1958 Birth Cohort*. Bryan Rodgers and Tanya Caldwell with Chris Power, Institute of Child Health London; Stephen Stansfeld and Charlotte Clarke, Queen Mary's School of Medicine, London.
- *AusAID funded project to Correct, Process and Archive Indonesian Population Data*. Terence Hull with Central Bureau of Statistics, Indonesia and Demographic Institute, University of Indonesia.
- ANU Institute for Environment
- CSIRO Atmospheric Research
- Earth Systems Research Network (ARC) Macquarie University

NCEPH in the media



NCEPH experts featured regularly in the media in 2005 – in print and on radio and television. Our researchers are often called upon by the media to provide expert comment on a variety of issues making the daily news. Several also published opinion pieces and feature articles in major newspapers and broadcast items on ABC Radio National.

Prominent media stories involving NCEPH staff during 2005 included:

'Catch of the Day' (Hilary Bambrick)

Hilary was interviewed for this segment shown in August on the Nine Network's *A Current Affair*. She spoke about the dangers of excess fish consumption by pregnant women and children.

'Avian influenza threat to Taiwan' (Hilary Bambrick)

New Tang Dynasty Television, Taiwan, interviewed Hilary about border protection and the threat of avian influenza to Taiwan in December.

'US unveils new climate plan with Asia Pacific' (Colin Butler)

Colin was interviewed by Jack Yong Ho on Radio Singapore in July and by Janaki Kremmer, Christian Scientist Monitor on the new climate pact between the US, Australia and other countries.

'Resilience and happiness' (Richard Eckersley)

Richard took part in a panel discussion on resilience and happiness which was recorded for *Life Matters* on ABC Radio National in February and was interviewed by SBS in March for a television series *Decadence*.

'Avian influenza' (Niels Becker)

Niels was interviewed by Geraldine Doogue for her Radio National program about the risk of the avian influenza virus H5N1 acquiring the ability to be transmitted from human to human and our preparedness for a pandemic of influenza, including the question of whether such a pandemic strain would retain its high case-fatality rate.

'Avian influenza' (Adrian Sleight)

Geraldine Doogue interviewed Adrian in October for her *Saturday Breakfast* program on the possible impact of avian influenza. This followed the publication of two research papers, in the journals *Nature* and *Science*, reporting the results of US research which reassembled the genetic sequence of the 1918 flu virus. Adrian was also interviewed in November by ABC Radio News and *The World Today*, Radio Australia, the *Weekend Australian Magazine*, *The Sydney Morning Herald* and *The Canberra Times* on avian influenza.

'Climate change' (Rosalie Woodruff)

Rosalie was interviewed by Prime Television on climate change in November and did a number of radio, television and newspaper interviews following the launch of the report *Climate Change Health Impacts in Australia: Effects of Dramatic CO2 Emission Reductions*.

'Climate change' (Tony McMichael)

Tony McMichael wrote a commissioned article for *The Canberra Times* on global sustainability and human health and was interviewed in May by ABC Radio National, *The National Interest* program, on the impact of ecosystem and climate change on public health.

'Health insurance rebate' (Agnes Walker)

Agnes Walker did a series of media interviews in May, on her research study on the impact of the health insurance rebate, which concluded that the rebate has almost no impact on the membership of health funds.

'Job pressure and health' (Rennie D'Souza)

The health effects of job pressure and insecurity were the subject of radio, television and newspaper interviews recorded by Rennie D'Souza in June.

'Gender issues' (Michael Flood)

Michael did a large number of radio television and newspaper interviews during the year on a variety of issues affecting men, including fathering, marriage, family law, friendships, loneliness, homophobia and pornography.

THE GRADUATE STUDIES PROGRAM

Postgraduate training during 2005 was concerned primarily with Doctor and Master of Philosophy research and the Master of Applied Epidemiology program. An induction program for newly commenced PhD students was carried out on an individual basis.

In September a 'Work in Progress' conference was held at Burgmann College. The conference gave research students the opportunity to present seminars on their current research in a conference environment. A good audience of academic staff and other research students attended the seminars and provided feedback to the speakers on both content and presentation.

In September NCEPH, the Centre for Mental Health Research (CMHR), The Australian Centre for Economic Research on Health (ACERH), and the Australian Primary Health Care Research Institute (APHCRI) collaborated to provide an information evening for prospective research students. The session was hosted by the Director of NCEPH, Professor Tony McMichael, and allowed current students and graduates to talk about their experiences at ANU. The information evening generated considerable interest and was found to be an effective means of promotion and recruitment. NCEPH also contributed material, and in some instances staff participation, in other recruiting events such as ANU Open Day and Graduate Expos.

During 2005 a number of academic staff and students conducted methodology seminars for research students on a variety of topics, including: causality in epidemiology, qualitative randomised controlled trials, methods for stakeholder engagement, bias, confounding and interaction: definitions and differentiation, an introduction to literature reviews, thesis proposal reviews, and ethics protocols in public health. Research students are represented on the seminar organising committee, ensuring that student requirements are incorporated into the program.

Research students met with the Graduate Studies Convenor to review issues they wished to have raised by their representative at Faculty meetings.

In 2005 NCEPH supported two ANU students with honours scholarships. The Centre once again offered the Baume scholarship, established to assist an enrolled student at NCEPH with a contribution towards travel and associated costs to attend a conference. This enabled Rupen Shrestha to attend and present a paper at the International Society for Environmental Epidemiology conference in Johannesburg, South Africa, and for Anna Olsen to attend the Australasian Society for HIV Medicine (ASHM) Conference and the Australasian Sexual Health Conference.

A PhD scholarship funded through an ARC grant was awarded to Anna Davies who will undertake research with The Weight of Modernity project which is investigating key social trends contributing to increasing obesity

Also in 2005, NCEPH recruited five students to undertake PhDs with the Thai Cohort Study. Funded jointly by the NHMRC and The Wellcome Trust, this study provides a unique opportunity for collaborative public health research in a special research partnership between Thailand and Australia and tackles a major issue for population health in our region, while developing new research capacity in Thai and Australian universities.

Student representatives in 2005 were Ian McRae and Annie Carroll.

Summer research scholars

The reproduction of professions like population health is a very difficult task. Not only does it require the preparation of new cohorts of skilled workers, but the young recruits also have to possess an extraordinary commitment to the development of science and service to the community. The Summer Scholar program at NCEPH has been a rich source producing a new generation of workers in the fields of epidemiology and population health. Bright undergraduates with an interest in health research are provided the resources needed to devote their vacation time to work with specialist mentors in NCEPH. While there is hope that many will go on to PhD studies and careers in population health, the main value lies in the life-changing experience they receive in gaining insights into the community of researchers, and modern public health challenges.

In 2005, NCEPH was pleased to host four such scholars who were each awarded a Summer Research Scholarship on a competitive basis. This enabled them to attend ANU, where they were accommodated at Burgmann College over the summer break, and complete a research project at NCEPH.

A brief description of their projects follow.

Nancy Cinnadaio (University of Wollongong)



Nancy worked with Julie Smith on a project which examined the marketing and promotion of commercial baby food and drinks.

"For this research project advertisements within the *Australian Womens Weekly* and *Medical Journal of Australia* were sampled and examined. The first two weeks of my scholarship were spent reading a number of articles and text related to breastfeeding and the marketing of artificial infant foods. These two weeks were really a crash course in breastfeeding. My time at NCEPH has been a great experience. Carrying out this research project has strengthened my organisational and analytical skills. I am grateful for Dr Julie Smith for taking me under her wing this summer and teaching me the highs and lows of research. I have come to understand that breastfeeding is an incredible loving act between a mother and child and its promotion is a worthy cause. Lastly I would like to say that it has been great to meet and speak to so many interesting people here at NCEPH."

Jenny Tao (The Australian National University)



Jenny worked with Mark Clements on a project examining the Giasi-King model, a new model used for mortality rate smoothing; studying how to use statistical software WinBUGS, especially using CAR (Conditional Autoregressions) to replicate some simpler models from Giasi-King model; and broadened her knowledge in statistical software R coding.

"I have very fond memories of working at NCEPH this summer. I was able to apply skills from my actuarial degree into an area of research; more importantly, it was a great way to study and to improve myself. Dr Clements provided a role model as a supervisor (if I ever get a chance to become one). With his help, I investigated and implemented the Giasi-King mortality rate model.

"NCEPH is like a big family. I was amazed as to, how friendly everyone was, how interesting a morning tea conversation could be, and how much joy and stress a PhD student could have from their project. All of these provided a unique experience.

"I will treasure my eight weeks at NCEPH."

Alicia Paul (The Australian National University)



Alicia was supervised by Terry Hull and worked on Indonesian census data analysis and investigating 'traditional' vaginal medication practices.

"During my time at NCEPH I have worked on a number of projects under Professor Terry Hull's supervision. I conducted a literature review on marriage trends in Asia, helped with analysis of survey data to calculate marriage ages in Indonesia and worked jointly with Sharon Friel and Terry on using Indonesian survey data to look at nutrition trends. Two of the most interesting projects I've been involved in were helping to edit a book chapter for Terry and Iwu Utomo on efficacy and toxicity testing of Indonesian herbal remedies and designing a survey for research on vaginal practices in Indonesia, Thailand, South Africa and Mozambique.

"These have all been such good experiences. I have been able to develop and consolidate many skills including report writing, literature searching, data analysis and survey designing. I have gained insight into how the world of research works, the skills and thinking I need to follow a career in this area, and how varied and interactive the work can be amongst researchers.

"Perhaps the most valuable experience for me over this summer though has been the opportunity to talk to other summer scholars, students and researchers about their ideas and interests. It has been an enjoyable, eye-opening and encouraging experience for me."

Belinda Reeve (University of Auckland)



Belinda was supervised by Lyndall Strazdins, and worked with the *Health for Life!* team.

"As an undergraduate law/arts student at the University of Auckland, I applied to study at NCEPH because of the unique opportunity it offered to study at a centre for population health at an undergraduate level.

"Working for the *Health for Life!* study, I undertook a project which involved researching family friendly work conditions in the retail and public sector. I found this project fascinating as it allowed me to draw on my background in both law and social science in a population health setting.

"Thanks to Megan Shipley, Lyndall Strazdins and Dorothy Broom for their support and guidance, and also to the staff and students of NCEPH for making me feel so welcome."

Research student profiles



Masha Somi

"Having had an interest in international poverty and economic development since my early teens, I completed a combined degree in Arts and Economics at ANU, focussing on development studies and economic history. My Honours project on the economic costs of malaria and the history of malaria control activities focussed my interest on the relationship between health and wealth and on the burden of malaria in developing countries.

"I chose to study at NCEPH because the Centre has an established relationship in my field (Health Economics), is multidisciplinary in nature (which has allowed me to undertake qualitative as well as quantitative research) and has a strong academic reputation.

"My project explores the relationship between wealth and malaria related outcomes. I decided to base my research in Tanzania as it is an incredibly poor country with a high incidence of malaria. I also grew up in Tanzania, and so have an interest in the region and a language advantage as I am fluent in Swahili. I was based in Ifakara, southern Tanzania, and conducted my field work in small, rural villages surrounding the town. It took 12 months to collect all the data I needed for my project.

"Once completed, I hope my research highlights the disproportionate burden that poorer households bear from malaria in rural Tanzania. My objective is to encourage policy makers to provide additional assistance to poorer, more vulnerable households when developing malaria programs.

"At the end of my studies I hope to work on economic issues around infectious diseases in developing countries, for example planning effective disease interventions or evaluating health interventions."



Stuart Collins

"I was attracted to NCEPH because it actively engages threats to sustainable human population health. Such threats include changing social, economic and natural environments.

"The need to understand impacts of climate change on vulnerable populations led to my PhD fieldwork in Flores, eastern Indonesia, supervised by Adrian Sleight, Tony McMichael and Colin Butler. I demonstrated patterns in quantitative data that show the human lifecourse is sensitive to environmental variability. My qualitative research showed that the people are vulnerable to several interacting environmental and economic shocks, in addition to climate variability itself. I found the people cope with these shocks in a limited number of ways, which are likewise vulnerable to economic and environmental change. The fieldwork was interesting and a lot of fun.

"My NCEPH PhD will complement work I have done to support government during crisis, for example WHO's response to the complex population health emergency in Indonesian (west) Timor in 1999. Following my PhD I want to support governments of less economically-developed countries to anticipate and respond to the threat of global-change driven, potentially massive population emergencies. NCEPH gave me an opportunity to develop this interest during my PhD program.

"In early 2005 NCEPH released me to support WHO's Tsunami Crisis Program in Aceh, where I helped design, and was emergency-phase leader for, a new WHO unit that initiated steps to restore function of local government (which was shocked by the interacting stressors of senior executive mortality, protracted military emergency, and overwhelming international response) in planning and coordinating health sector recovery. While the disaster was natural, the complex interacting themes of human vulnerability and response are likely to be similar for an environmental change driven population emergency.

"During my PhD research at NCEPH I have enjoyed being a small part of a big emerging picture."

Master of Applied Epidemiology



Mary Beers-Deeble with NCEPH Director, Tony McMichael and former Director Bob Douglas (far left) at her retirement dinner.

Mary Beers-Deeble, Director of the Master of Applied Epidemiology (MAE) Program since 1998 retired in June 2005. While the program continued to mature and augment the public health workforce under Mary's leadership, it made innovative contributions to policy development, and to strengthening systems of surveillance, response and preparedness against communicable diseases at the local, national and international levels. Four key accomplishments since 1998 were:

- increasing co-ownership of the program by States/Territories and the Commonwealth through the Communicable Disease Network of Australia
- active (and rapid) absorption of MAE alumni into the public health system in Australia and internationally
- the government's commitment to a five year funding arrangement
- engagement of the program with regional and international agencies including the World Health Organization, Association of South East Asian Nations, the Pacific Public Health Surveillance Network, AusAID, the Asian Development Bank and global Network of Training Programs in Epidemiology and Public Health Interventions (TEPHINET).

In addition, the learning experiences of students, staff and field-based supervisors were enriched by several important initiatives. The annual MAE conference provided a unique opportunity for students, field supervisors, alumni and invited guests to share experiences and expertise in a collegial setting. The Indigenous Health stream of the MAE was integrated with the Disease Control stream, yielding new and more diverse challenges and opportunities for learning, and for nurturing strong personal and professional relationships between students. A formal teacher-training and peer-learning activity became the key feature of March study blocks as second year students prepared and presented learning exercises to induct new students into the program. The process of selecting new students was also revised to include a more comprehensive assessment of each applicant's capacity for fieldwork and the inclusion of field placement supervisors in the selection process.

Once again, during 2005, students excelled in strengthening policy and practice in a range of specific areas through their field projects. Among the highlights were:

- student participation in the response to human cases with avian influenza in Cambodia (Ben Coghlan and Bridget O'Connor) and Indonesia (Chris Oxenford)
- evaluation of influenza surveillance and of the refugee screening program in Victoria (Albert Tiong)
- evaluation of the rheumatic heart disease register in the Northern Territory (Philippa Binns)
- evaluation of syndromic surveillance (Kirsty Hope)
- introduction of new legislation relating to privacy and access to health data in the ACT (Ray Lovett)
- strengthening gonorrhoea surveillance in Brisbane (Jessica Shipp); risk assessment
- management of nickel contamination in drinking water in Lithgow (Noore Alam).

The ongoing challenge for the program, as amplified by the threat of pandemic influenza, is for it to be both proactive as well as responsive in closing the gaps and strengthening interactions between research and policy, between academia and health services, between health and non-health sectors, between clinicians and public health professionals, between epidemiologists and laboratory scientists and between the national and international community.

MAE Student Profiles



Ben Coghlan

Placement: Macfarlane Burnet Institute for Medical Research and Public Health

Supervisors: Dr Tony Stewart, Dr Mahomed Patel

"My first MAE assignment with Burnet Institute was involvement in an International Rescue Committee (IRC) study on mortality in the Democratic Republic of Congo. As lead epidemiologist, I helped survey 120,000 Congolese - the largest survey of its type ever undertaken. We trained local health care workers and spoke to householders throughout the country. Insecurity, poor roads, and risk of disease made surveying remote villages hazardous. The IRC report made headlines around the world and was later published in the Lancet - almost four million people have died since civil war flared in Congo in 1998, and over 30,000 continue to die each month as a consequence of war. The major causes of death are infections and malnutrition. By showing a link between insecurity and mortality, the survey suggests that political and military measures are as important to saving lives in Congo as food and medicine. Advocacy following the survey has led to a change in US legislation with greater humanitarian and political support to Congo, and increased assistance from Britain and the European Union.

Other projects have included working with the Australian Red Cross in Sri Lanka following the Boxing Day tsunami; a consultancy for the World Health Organization in Cambodia investigating cases of avian influenza; epidemiology teaching in Melbourne and Uganda, and examining freezing of vaccinations in the cold chain system throughout Papua New Guinea.

"After receiving my medical degree from the University of Melbourne I worked at St Vincent's Hospital, Melbourne, and in Indigenous communities in northern Queensland. I completed a Masters of Public Health and Tropical Medicine in Townsville before working with a humanitarian organisation in Sudan.

"The MAE has enabled me to pursue my interest and further develop my skills in the international health arena."



Simon Firestone

Placement: Biosecurity and Disease Branch, Population Health Division, Australian Government Department of Health and Ageing, Canberra

Supervisors: Dr Jenean Spencer and Ms Mary Deeble

"Prior to the MAE, I worked as a veterinarian in large and small animal practices around Australia and in the UK. I also spent a stint teaching at one of Kasetsart University's veterinary hospitals in Thailand.

"I have just completed my first year in the MAE program, placed within the Office of Health Protection. During 2005, I have worked on a range of incredibly different projects from within the vast domain that is applied epidemiology.

"My major project has been a cross-sectional survey researching the capacity of the nation's intensive care units, public hospitals and health departments to respond to health disasters such as a terrorist incident, natural disaster or an influenza pandemic. My recently completed report will inform discussion between the Chief Medical Officer and the State Chief Medical Officers of the disaster preparedness of Australia's health system.

"Following the October course block, I was whisked off to Hobart to work on the Salmonella Typhimurium 135a (STM 135a) outbreak investigation that had been associated with two Launceston bakeries. Despite conducting two cohort studies and a modified case-control study the outbreak continued. We finally managed to isolate STM135a from numerous sites on a large Tasmanian egg farm, and following farm level and food handling interventions, the human outbreak in Tasmania ended just after Christmas.

"So far the MAE has provided me with an excellent opportunity to conduct epidemiological research that has significant public health impacts and directly informs policy makers. I have found the numerous linkages between veterinary and human epidemiology enthralling and look forward to working closely with the Department of Agriculture Forestry and Fisheries in 2006 to develop integrated interpretation of zoonoses surveillance data."

Students

Doctor of Philosophy students, their PhD topics and supervisors

Karen Andreasyan, BDentalSurgery MDentalSurgery MDentalSci *Yerevan State Medical University MPH Umea University*

Dietary determinants of child asthma

Dr A-L Ponsonby, Dr K Dear, Associate Professor M Riley

Victoria Brett, BSc (Hons) *UNSW*

Understanding Ross River disease and transmission in NSW: using climate, vector and host distributions to predict onset and severity

Professor AJ McMichael, Dr K Dear, Dr R Woodruff

Annie Carroll, BA *CSturt* BSW (Hons) *Melb*

Achieving population health through trade unionism

Dr J Dixon, Dr C Butler, Dr L Strazdins

Stuart Collins, MBBS *Old DTM&H James Cook* MPH *Syd*

Nutrition on Flores Island, Nusa Tenggara-Timur province, Indonesia: the impact of El Niño

Professor A Sleigh, Professor AJ McMichael, Dr C Butler, Dr B Lees

Robyn Davies, RN RM BA (Hons) *ANU*

Protective factors for adolescent drug use

Dr G Bammer, Dr G Hall

Rosemary Ford, BHealthMan GradDipPubHlth *UNE* Master of Nursing *Canberra*

Injecting drug-users and nurses in the ACT: understanding the issues

Dr G Bammer, Professor N Becker, Dr T Makkai

Howard Galloway, BM BS *Flinders* FRANZCR

Can Information Technology improve patient safety in radiology? Evaluation of the implementation of an integrated RIS/PACS

Dr J Butler

Penny Haora, DipAppSci(Nurs) *Avondale/SAH* RN Grad Dip Mid *UWS* RM MPH *UNSW*

Maternal deaths and maternal morbidities in Thailand: the impact of birthing technologies

Professor T Hull, Dr E Banks, Dr S Friel

Jennifer Hargreaves, BSc (Hons) *ANU*

Adverse events in routinely collected mortality and morbidity data

Dr B Sibthorpe, Dr C Kelman, Dr P Philips

Sarah Hinde, BSc GradDipPopHlth *ANU*

Car cultures and health inequalities

Dr J Dixon, Dr T Kjellstrom, Dr D Broom, Dr C Banwell, Mr M Dolan

Geethanjali Isaac-Toua, MBBS *PNG* DipPubHlth *Otago*

Methadone program evaluation

Dr R D'Souza, Professor N Becker, Dr P Dance

Rosemary Korda, BAppSci MAppSci *La Trobe* Grad Dip PopHlth *ANU*

Socio-economic inequality in the use of health care in Australia, and the impact on health outcomes.

Dr J Butler, Dr M Clements, Dr J Dixon

Karen Lees, RN RM BAppSci (Nurs Sci) *Canberra*

Long term outcomes of neck and upper body disorders among female office workers

Dr G Bammer, Dr L Strazdins, Dr K Dear

Kamalini Lokuge, MBBS *Tasmania* MIntLaw *ANU*

Interventions for arsenic mitigation in Bangladesh and their effect on childhood diarrhoeal disease

Dr K Dear, Dr B Caldwell, Professor W Smith, Dr M Patel

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The economics of GP bulk billing and the impact of policy change

Dr J Butler, Dr A Sidorenko, Professor B Chapman

Lynelle Moon, BMath *Wollongong* GradDipStats GradDipPopHlth *ANU*

Inequalities in population-level health outcomes: the case of coronary heart disease

Dr G Carmichael, Dr L Lim, Emeritus Professor RM Douglas, Dr P Magnus, Dr J Butler

Kasumi Nishigaya, BA *Meiji Gakum* MAAS MA *ANU*

Social and sexual relations of young female garment factory workers in Cambodia and their risk of HIV/AIDS

Professor J C Caldwell, Dr G Carmichael, Professor N Becker

Anna Olsen, BSc BA Hons *ANU*

Choice or Chance: The social context of contraceptive use by women with hepatitis C

Dr D Broom, Dr P Dance, Dr C Banwell, Dr M Temple-Smith

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Future burden of selected risk factors in Thailand

Professor A Sleight, Dr L Lim, Dr C Bain, Dr S Wibulprasert, Dr S Seubsman

Saifur Rahman, MBBS *Chittagong* MPH *Johns Hopkins* Diploma AIDS/STD Management *Consortium of Thai Training Institutes for STDs and AIDS*

Reproductive health of women complaining of vaginal discharge

Professor T Hull, Dr F Bowden, Dr RM D'Souza, Professor N Becker

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The cost of injury to the Australian army

Emeritus Professor RM Douglas, Dr J Butler, Professor W Smith

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Health Information Systems

Dr B Sibthorpe, Dr J Condon, Professor N Glasgow

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Population health impact of air pollution

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Household socio-economic status and malaria in rural Tanzania

Dr J Butler, Dr M Patel, Dr A Martina

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Environmental factors, particularly ultraviolet radiation, affecting multiple sclerosis and other autoimmune disease

Dr A-L Ponsonby, Professor AJ McMichael, Dr L Lim, Ms M Beers-Deeble

Xiaoyun Sun, BMed *Shanghai Medical University* MPH *Shandong University*

Community health financing in rural Shandong China: the New Cooperative Medical Schemes and its impact on health care provision and financial protection.

Professor A Sleight, Dr G Carmichael, Dr A Sidorenko, Dr S Li, Dr S Jackson

Arunrat Tangmunkongvoralkul, BSc (Nursing & Midwifery) *Chiang Mai Uni* MSc (Health Promotions) *London*

Sexual health in transition: adolescent lifestyles and relationships in contemporary Chiang Mai, Thailand

Professor A Sleight, Dr C Banwell, Dr I Utomo, Dr G Carmichael, Dr L Lim, Dr A Aramrattana, Dr K J Taywaditep

Leanne Unicomb, BSc (Hons) *La Trobe* M Med Sci *Newcastle*

Investigation of sub typing methods to determine regional and national risk factors for infection with *Campylobacter*

Professor N Becker, Dr M Patel, Professor L Gilbert

Matthew Williams, BA MA Intern Studies *UTS*

(Initial) Transport fatalities and injuries in the context of the socio-economic and cultural transition underway in Thailand

Dr J Dixon, Dr T Kjellstrom, Dr C Banwell

Vasoontara Yienprugsawan, BA (Econ) *Thammasat University* MA (Int'l Relations) *Maxwell School of Syracuse University*

Decomposing health inequalities in Thailand

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The ACT heart failure survey

Professor AJ McMichael, Professor W Smith, Professor N Becker

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The overall cost to the individual and the community of post-operative infection in total joint replacement

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Optimal resource allocation for prevention and treatment of cardiovascular disease in New Zealand

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PUBLICATIONS

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Books & chapters

Books

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- Lucas RM, McMichael AJ. Stratospheric ozone depletion: successful responses to a global environmental insult. In: Ebi KL, Smith J and Burton I (eds). *Integration of Public Health with Adaptation to Climate Change: Lessons Learned and New Directions*. Lisse, The Netherlands, Swets & Zeitlinger. 2005: 215-241.
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- McMichael AJ. Survival or self-harm? In: Carroli L (eds). *The Ideas Book*. Brisbane, Queensland University Press. 2005: 215-221.
- McMichael AJ. Sustainability health and wellbeing. In: Goldie J, Douglas B and Furness B (eds). *In Search of Sustainability*. Melbourne, Australia, CSIRO. 2006: 17-35.
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- McMichael AJ, Kjellstrom T, Smith KR. Environmental Health. In: Merson, M, Black, R. and Mills, A.J. (eds). *International Public Health*. Gaithersburg, Md., Aspen Publishers. 2005.
- McMichael AJ, Woodruff RE. Climate change and human health. In: Oliver JE (eds). *Encyclopedia of World Climatology*. The Netherlands, Springer. 2005: 209-213.
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- Sarre A, Bird M, Caldwell T. Living with memory loss: A national experience of support groups in Australia. In, *Les Cahiers de la fondation Mederic Alzheimer*. 2005, 1: 53-65.

Sleigh AC. Outbreaks, epidemics and clusters. In: Webb P, Bain C and Pirozzo S (eds). *Essential Epidemiology*. Cambridge, Cambridge University Press,. 2005: 366.

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Utomo ID. Women's Lives: Fifty Years of Change and Continuity. In: Hull TH (eds). *People, Population and Policy in Indonesia*, Equinox Publishing (Asia) and Institute of Southeast Asian Studies. 2005: 71-124.

Walker A. Economic and Health Impacts of Narrower Health Inequalities in Australia. In: Yfantopoulos J (eds). *The Economics of Health Reforms*. Athens, Atiner. 2005.

Woodruff RE. Epidemic early warning systems: Ross River virus disease in Australia. In: Ebi K, Smith J and Burton I (eds). *Integration of public health with adaptation to climate change: Lessons learned and new directions*. London, Taylor & Francis Group,. 2005: 91-113.

NCEPH staff names are in bold.



Richard Eckersley gave a lecture at Parliament House as part of the Vital Issues Seminar series in August, on *The demise of the 'official future': Is material progress delivering a better world?*

Invited keynote conference papers

Bambrick H. *Is globalisation bad for your health?* Home Economics Institute of Australia Conference - The Choice is Ours: Sustainable Futures and Home Economics, Hobart, January.

Bambrick H. *Healthy rights and responsibilities: Environmental change and global inequalities.* Home Economics Institute of Australia National Conference - The Choice is Ours: Sustainable Futures and Home Economics, Hobart, January.

Bambrick H. *Trading away public health: Lessons from the recent United States-Australia Free Trade Agreement.* Global Forum for Health Leaders, Taipei, 28 November - 3 December.

Bammer G. *Is it time to move from systems thinking and complexity science to Integration and Implementation Sciences?* 11th Annual ANZSYS (Australian and New Zealand Systems) Conference' and 'Managing the Complex V', Christchurch NZ, December.

Bammer G. *Enhancing Research to Better Inform Practice.* Australian Research Alliance for Children and Youth (ARACY) National Conference "Closing the Know-Do Gap", Sydney Australia, August.

Banwell C, Dixon J, Strazdins L, Shipley M, Scales D, Stuart-Harris J. *Changing social trends and their influence on family eating.* Nutrition Australia (Queensland Branch), Brisbane, October.

Becker N. *Mathematical Modeling of Infectious Diseases: Immunity, vaccination, and other control strategies.* Invited course of five lectures for the Institute for Mathematical Sciences, National University of Singapore.

Broom D. *Gender in the experience of diabetes.* Australian Diabetes Educators' Association ACT Branch Annual Conference, Canberra, October.

Broom D. *Parental work and family health: questions for sustainability.* Home Economics Institute of Australia National Conference, Hobart, January.

Butler CD. Findings of the Scenarios Working Group, Millennium Ecosystem Assessment launch event in India, Vigyna Bhavan, New Delhi India, March.

Butler CD. *Eco-social systems and health promotion.* Roundtable to discuss links between eco-health and health promotion, Melbourne, July.

Butler CD. *The relationship between agriculture and human health: an environmental perspective.* Linkages between agriculture and health, Consultative Group on International Agricultural Research, Washington DC, USA, June.

Butler CD. *Emerging health issues: the widening challenges for population health promotion.* 6th Global Conference on Health Promotion, Bangkok Thailand, August.

Clements M. *What is small area analysis?* NSW Health EPI-SIG, Sydney, November.

Coghlan B. *Working in the developing world.* Engineers Without Borders Inaugural National Conference, December.

Dance P, Baxter E, Chatfield H, Tongs J, Guthrie J, McDonald D, D'Souza R, Cubillo C, Bammer G. *"I want to be heard": an analysis of needs of Aboriginal and Torres Strait Islander illegal drug users in the ACT and Region for treatment and other services.* Moving forward, looking back. Drug and Alcohol Nurses of Australasia Conference, Canberra, June.

Dixon J. *The quadruple bottom line: monitoring the cultural determinants of sustainability.* Manning Clark Conference: Moving towards a sustainable Canberra, Canberra, October.

Dixon J, Hinde S. *The socio-cultural and environmental barriers to cycling.* Bicycle Federation of Australia Conference: Connecting Cycling '05, Brisbane, October.

Dixon J. *The social life of the Australian chicken.* The 17th Annual Australian Poultry Science Symposium, Sydney, February.

Eckersley R. *Thinking, drinking and the question of culture*. Australian Drug Foundation conference, Melbourne, February.

Eckersley R. *Media message and mental health: how cultural fraud is undermining our wellbeing*. MindMatters national conference, Sydney, March.

Eckersley R. *Tough times, great times: what's life like for children today?* ACT Scouts and Guides Leadership Conference, Canberra, May.

Eckersley R. *Tough times, great times: what's life like for children today?* Early Childhood Conference, 'Our Children the Future', Adelaide, June.

Eckersley R. *Are we headed in the right direction? And how would we know?* 12th International Conference on Thinking, Melbourne, July.

Eckersley R. *Downshifting: linking personal goals and global change*. Downshifting Downunder conference, Sydney, July.

Eckersley R. *Culture, spirit and wellbeing; looking at the big picture*. First national conference on spirituality and health, Adelaide, July.

Eckersley R. *Education and quality of life: a radical vision*. Australasian Curriculum Assessment and Certification Authorities annual conference, Canberra, August.

Eckersley R. *Quality of life, sustainability and public policy: forging closer links*. Executive Leadership Group Victoria annual conference, Geelong, August.

Eckersley R. *Taking care of culture (and not just business): how cultural fraud is affecting wellbeing*. Vanguard Program Conference, Glasgow, Scotland, September.

Eckersley R. *Wellbeing: How we feel and why it matters*. Australian Council of State Schools Organisations national conference, Canberra, October.

Eckersley R. *The world and prospects of young Australians*. Anglicare Victoria annual conference, Melbourne, October.

Eckersley R. *Patterns and trends in quality of life: a synthesis approach*. 7th Australian conference on quality of life, Melbourne, November.

Flood M. *Fathers' rights and violence against women*. Refocusing Women's Experiences of Violence, Sydney, September.

Flood M. *Boys, young men and gender equality*. United Nations Commission on the Status of Women, Panel: Future perspectives on the promotion of gender equality: Through the eyes of young women and men, New York, March.

Hull T. Keynote Speech at the Conference on the Future of Indonesia, in honor of Fifty Years of the Faculty of Economics, Gadjah Mada University, Yogyakarta, Indonesia, titled Towards a New Indonesia: Population and Decentralization.

Kelman C. *Mining linked health data – a new frontier*. Health Data Mining Workshop, Adelaide, April.

Kelman C, Rosman D. *The Western Australian Data Linkage Project*. September Symposium on Data Linkage SSAI. Canberra, September.

Kjellstrom T. *Health Promotion -- the past: Creating supportive environments*. 15th Australian Health Promotion Association conference, Canberra, March.

Lucas R. *The burden of disease due to skin cancer*. 4th International Euroskin conference, Lyon, France. May.

Lucas R. *Pros and cons of vitamin D and UVR exposure*. International Workshop on UV exposure guidelines. Munich, Germany. October.

McMichael AJ. *Integrating nutrition and ecology: balancing the health of humans and biosphere*. Giessen Workshop, Germany, April.

McMichael AJ. *Climate change and human health: the sharp end of "Sustainability"*. The World Life Sciences Forum, Biovision, Lyon, France, April.

McMichael AJ. *Environmental conflict and security*. RACP Annual Scientific Meeting, Wellington NZ, May.

McMichael AJ. *Health research; Widening our ethical horizons*. NHMRC 2005 Ethics in Human Research National Conference, Canberra, May.

McMichael AJ. *"Moving targets" – humans and microbes in a globalising world*. Charles Darwin Symposium, Darwin, May-June.

McMichael AJ. *Health risks for ageing populations in a changing global environment*. Australian Association of Gerontology 40th Anniversary Conference, Canberra, June.

McMichael AJ. *Evolutionary and ecological perspectives on strategies to improve health outcomes in Australia*. 11th Annual 'Health Outcomes' National Conference, Canberra, August.

McMichael AJ. *Public health successes and failures – over time and space*. Douglas Gordon Oration, 36th PHAA Annual Conference, Perth, September.

McMichael AJ. *Health as the bottom line of sustainability: can epidemiology meet the challenge?* International Society for Environmental Epidemiology 18th Conference, Johannesburg, September.

McMichael AJ. *Evidence based nutrition: wider horizons*. Triennial International Nutrition Congress, Durban, September.

McMichael AJ. Annual Priestley Lecture, CSIRO: *Climate, environmental and ecosystem changes: challenges for health impact assessment*. Melbourne, November.

Sidorenko A. *Liberalisation of trade in health services in ASEAN: prospects, progress and challenges*. ASEAN Services Forum, Hanoi, Vietnam, July.

Sidorenko A. *Developing countries and trade in services: the Doha round*. Trade negotiations workshop, Griffith Asia Institute/Griffith University, Brisbane, August.

Sidorenko A, Findlay C. *Modelling macroeconomic costs of pandemic influenza: methodology and approaches*. The 4th Health Services & Policy Research Conference, Canberra, November.

Sleigh AC. *Ertan Dam and health impacts*. East-West Centre Conference on Emerging Infectious Diseases and Social-Ecological Systems, Honolulu, USA, March.

Sleigh AC. *Lessons from SARS*. Workshop on Influenza Pandemics and Complex Systems, CSIRO Centre for Complex Systems Science, CSIRO Sustainable Ecosystems, Gunghalin Homestead, ACT, May.

Sleigh AC. *Epidemiology of avian influenza*. Care Australia -Lowy Institute Seminar on the Impact of Avian Influenza, Lowy Institute, Sydney, November.

Wadsworth Y. *Is it safe to talk about systems again yet?* Bob White Memorial Lecture, Australian Sociological Association national conference, University of Tasmania, Hobart, December.

Walker A. *Differences in income are a health hazard*. Australian Health Policy Institute Seminar, University of Sydney, June.

Walker A. *Combining datasets for Health Policy Research*. Statistical Society's Data Linkage Symposium, ANU, September.

HONOURS & AWARDS

- **Binns P.** Poster prize at Communicable Disease Conference.
Comparison between results of interventions to limit outbreaks of acute post-streptococcal glomerulonephritis in an Aboriginal community in 2000 and 2005. Sydney, May.
- **Coghlan B.** Winner of GJ Rouch Prize for the best presentation of research work for Meeting of the Victorian branch of the Australasian Faculty of Public Health Medicine

FINANCE

Income and Expenditure Statement 2005

| | |
|--------------------------|------------------|
| Income | \$ |
| ANU Contribution | 1,309,000 |
| ANU Internal transfers | 105,750 |
| Commonwealth PHERP Funds | 1,143,519 |
| Grants and Consultancies | 7,119,807 |
| Total income | 9,678,076 |
| | |
| Expenditure | \$ |
| Salaries | 5,599,396 |
| Students | 1,047,824 |
| Travel | 546,683 |
| Operations and Equipment | 1,853,025 |
| Total expenditure | 9,046,928 |